

**Commonwealth of Kentucky  
Division for Air Quality**

**REVISED PERMIT APPLICATION SUMMARY FORM**

Completed by: Lisa Beckham

GENERAL INFORMATION:

Name:	Constellation Spirits Inc.
Address:	300 Barton Road Bardstown, KY 40004
Date application received:	4/16/2008
SIC Code/SIC description:	2085, Distilled and Blended Liquors (except apple jack)
Source ID:	21-179-00020
Agency Interest:	3247
Activity:	APE20080002
Permit:	V-07-024 R1

APPLICATION TYPE/PERMIT ACTIVITY:

<input type="checkbox"/> Initial issuance	<input type="checkbox"/> General permit
<input checked="" type="checkbox"/> Permit modification	<input type="checkbox"/> Conditional major
__Administrative	<input checked="" type="checkbox"/> Title V
__Minor	<input checked="" type="checkbox"/> Synthetic minor
<u>X</u> Significant	<input checked="" type="checkbox"/> Operating
<input type="checkbox"/> Permit renewal	<input type="checkbox"/> Construction/operating

COMPLIANCE SUMMARY:

<input type="checkbox"/> Source is out of compliance	<input type="checkbox"/> Compliance schedule included
<input checked="" type="checkbox"/> Compliance certification signed	

APPLICABLE REQUIREMENTS LIST:

<input type="checkbox"/> NSR	<input checked="" type="checkbox"/> NSPS	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> PSD	<input type="checkbox"/> NESHAPS	<input type="checkbox"/> Other
<input type="checkbox"/> Netted out of PSD/NSR	<input type="checkbox"/> Not major modification per 401 KAR 51:001, 1(116)(b)	

MISCELLANEOUS:

- ☐ Acid rain source
- ☐ Source subject to 112(r)
- ☒ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☒ Diagrams or drawings included
- ☐ Confidential business information (CBI) submitted in application
- ☐ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

#### EMISSIONS SUMMARY:

Pollutant	Actual <sup>1</sup> (tpy)	Potential <sup>2</sup> (tpy)
PM/PM <sub>10</sub>	23.4/7.83	61.0/33.7
SO <sub>2</sub>	134	225 <sup>3</sup>
NO <sub>x</sub>	55.5	125
CO	26	59
VOC	1669	2153
Hydrogen Chloride	5.79	9.0 <sup>3</sup>

<sup>1</sup> Based on the 2007 KyEIS Survey

<sup>2</sup> Includes fugitive emissions

<sup>3</sup> Based on federally enforceable source-wide limits

#### SOURCE DESCRIPTION:

Constellation Spirits Inc. operates a distillery in Nelson County, Kentucky, where whiskey and bourbon are produced from grains through fermentation and distillation. Grain that has been milled is fed into mash cookers along with water where the grain starches are converted to sugars by heating. The cooked grain/water mixture is fed into fermenter vessels as a batch operation to convert the sugars to ethanol. After an appropriate residence time, the mixture is processed through distillation columns and condensers to separate the ethanol from the mixture. The condensed liquid is put into barrels to be aged. After the appropriate age is reached the bourbon or whiskey is dumped from the barrels, processed and bottled for shipping.

#### **CURRENT PERMITTING ACTION: REVISION 1 - REMOVAL OF COAL USAGE LIMIT**

On April 16, 2008 Constellation Spirits submitted an application for a significant revision to their Title V permit, V-07-024. Supplemental information was received on May 8, 2008 and June 10, 2008, respectively. On June 5, 2008 Constellation Spirits submitted an application for an administrative name change from Barton Brands, LTD to Constellation Spirits Inc. The name change has been incorporated into this permit revision.

In this revision, Constellation Spirits has proposed replacing the 15,000 ton per year limit on coal usage with a limit on the chlorine content of coal. The limit on coal usage was set based on the AP-42 emission factor for hydrogen chloride to preclude applicability of CAA Section 112(j). In October 2007 Constellation Spirits conducted stack testing on Emission Unit 09 (99.5 MMBtu/hr coal-fired boiler) to determine emissions of hydrogen chloride and particulate matter. The facility controls hydrogen chloride by injecting lime into the combustion gases prior to entering the baghouse for Emission Unit 09. During the stack test, the hydrogen chloride emissions were determined at varying lime feed rates (0 to 180 lb/hr). These results were then used to develop the polynomial equation below to estimate the control efficiency of hydrogen chloride, where  $x$  = the lime feed rate:

$$\text{Control Efficiency} = -2 \times 10^{-5} x^3 + .0058x^2 - .0331x + 30.963 \quad (R^2 = 0.9984)$$

The maximum chlorine content is set at 2,956 ppm (110% of the average chlorine content used during testing) and will be based on the monthly average chlorine content of coal burned. Constellation Spirits will use this equation, the chloride content of the coal and the lime feed rate to determine monthly hydrogen chloride emissions. Since the stack tests were conducted at or near the maximum heat input of the boiler, Constellation Spirits considers this method to be a conservative approach to estimating emissions, since the polynomial equation used does not take into account the heat input of the boiler. The 9.0 ton per year limit on hydrogen chloride emissions remains unchanged and the facility shall maintain a log of the twelve-month rolling total for review by the Division. All 502(b)10/off permit changes have also been incorporated into this permit revision.

#### EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

To preclude applicability of 401 KAR 51:017, Prevention of significant deterioration, source-wide sulfur dioxide emissions shall not exceed 225 tons per year based on a twelve (12) month rolling total.

To preclude applicability of Section 112(j) of the Clean Air Act, source-wide emissions of a single hazardous air pollutant (HAP), shall not exceed 9.0 tons any consecutive twelve-month period.